



2007106

**Metals Analysis
for Cross Community Coalition Soil Samples
ULSA U8- 020067**

Analyst: Vicente C. Marti

Collection:

A total of 3 raw soil samples and one rinsate water sample were submitted for analysis of arsenic (As) and lead (Pb) on 01/25/02. Samples were received cooled at 14 °C. No other chemical preservation was used. Samples were collected and delivered to the laboratory immediately after collection, no seals were used.

As per ULSA directions the raw samples were dried for 24 hours at $48^{\circ}\text{C} \pm 2^{\circ}\text{C}$. After drying, the samples were sieved through a #10 sieve and the sieved material was placed in a plastic bag. The sieved and dried bulk material was then logged in to the LIMS system and submitted for analysis on 01/29/02. The sample date on the certificate of analysis reflects this log-in date.

Extraction and Analysis:

The sieved and dried bulk portion was then digested using SW-846 method 3051, "Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils," revision 0, September 1994. A laboratory control sample (LCS) obtained from RTC, Wyoming, was determined in duplicate together with a laboratory fortified water blank (LFB) spiked at 100 µg/L and a preparation blank. After digestion the samples were centrifuged and submitted to graphite furnace atomic absorption analysis using the Perkin Elmer SIMMA 6000 spectrophotometer using method 2 (simultaneous determination of arsenic, lead, and selenium). The rinsate sample was acidified prior to analysis.

Analyst Notes:

For the microwave digestion a 0.50 gram sample was placed in the digestion vessel and 10.0 ml of concentrated nitric acid was added. After digestion the final volume of all soil samples was brought up to 50.0 ml. The spectrometer program calculates results as µg/L. For the final report, values obtained in µg/L are multiplied by 0.1 and reported as mg/kg or parts per million (ppm).

All samples had values for arsenic within the calibration range (1 to 100 µg/L), but the lead values for the soils were over the highest standard, so a 10x dilution was determined at the end of the run. Duplicate soil determination was performed on sample 3-0CCC1-B: two 0.50 gram portions were digested and found to contain 3.5 and 4.2 mg/kg of arsenic, respectively, and 78.5 and 86.0 mg/kg of lead, respectively. Both had acceptable RPD. Sample 3-0CCC3-B was spiked at 10.0 mg/kg of As and Pb. The lead recovery was 150%; this high recovery is due to sample non-homogeneity (#10 sieve is quite large) and to the fact that the spike is less than 20% of the sample total lead. Recovery for arsenic was almost 100%. All other QC was OK. All blank results were less than PQL.

Metals A- 02

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
TECHNICAL & MANAGEMENT SERVICES

LABORATORY SERVICES PROGRAM

CERTIFICATE OF ANALYSIS

SAMPLE NUMBER: 8-105485
MATRIX: SOIL
PROJECT: COALITION SITE 02-67
TEST: METALS
ANALYST: (AAGF) VCM *W*
LAB NUMBER: 02-A000037

DATE-TIME SAMPLED: 1/29/02 7:35
STATION ID: 3-0CCI-B
ULSA NUMBER: 02-67
ANALYSIS COMPLETE DATE: see below

METHOD -----	PARAMETER -----	RESULT -----	COMP DATE -----
7060 7421 2540G	AAGF GROUP Arsenic Lead % Solids	AAGF RESULTS 3.50 78.5 91.10	1/29/02

EPC - 5.5 ppm ds

91.2 ppm

NOTE: All Results are in PPM Dry Weight

Metals A- 002

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LABORATORY SERVICES PROGRAM

CERTIFICATE OF ANALYSIS

SAMPLE NUMBER: 8-105486
MATRIX: SOIL
PROJECT: COALITION SITE 02-67
TEST: METALS
ANALYST: (AAGF) VCM *[Signature]*
LAB NUMBER: 02-A000038

DATE-TIME SAMPLED: 1/29/02 7:45
STATION ID: 3-0CC2-B
ULSA NUMBER: 02-67
ANALYSIS COMPLETE DATE: see below

METHOD -----	PARAMETER -----	RESULT -----	COMP DATE -----
7060 7421 2540G	AAGF GROUP Arsenic Lead % Solids	AAGF RESULTS 5.50 109. 90.70	1/29/02

NOTE: All Results are in PPM Dry Weight

Metals A- 003

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LABORATORY SERVICES PROGRAM

CERTIFICATE OF ANALYSIS /

SAMPLE NUMBER: 8-105484
MATRIX: SOIL
PROJECT: COALITION SITE 02-67
TEST: METALS
ANALYST: (AAGF) VCM *lmm*
LAB NUMBER: 02-A000039

DATE-TIME SAMPLED: 1/29/02 7:58
STATION ID: 3-0CC3-B
ULSA NUMBER: 02-67
ANALYSIS COMPLETE DATE: see below

METHOD -----	PARAMETER -----	RESULT -----	COMP DATE -----
7060 7421 2540G	AAGF GROUP Arsenic Lead % Solids	AAGF RESULTS 4.80 86.0 92.60	1/29/02


NOTE: All Results are in PPM Dry Weight

Metals A-001

U.S. ENVIRONMENTAL PROTECTION AGENCY
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LABORATORY SERVICES PROGRAM

CERTIFICATE OF ANALYSIS

SAMPLE NUMBER: 8-105482
MATRIX: WATER
PROJECT: COALITION SITE 02-67
TEST: METALS
ANALYST: (AAGF) VCM 
LAB NUMBER: 02-A000040

DATE-TIME SAMPLED: 1/25/02 14:35
STATION ID: 3-0CC-4
ULSA NUMBER: 02-67
ANALYSIS COMPLETE DATE: see below

METHOD -----	PARAMETER -----	RESULT -----	COMP DATE -----
200.9 200.9	AAGF GROUP ARSENIC LEAD	AAGF RESULTS < 1 < 0.8	1/29/02

NOTES: Analyte Results are in ug/L except * are in mg/L
Hardness Results are in mg Equivalent CaCO3/L

Metals A- 0.05

Results for Blank Samples

Blank Number	Arsenic	Lead
Calibration blank	< 1.0 µg/L	2.2 µg/L*
Blank	< 1.0 µg/L	2.0 µg/L*
Preparation blank	< 1.0 µg/L	2.1 µg/L*
Blank	< 1.0 µg/L	2.0 µg/L *
Blank	< 1.0 µg/L	1.9 µg/L*

*Less than PQL. A value of 2.0 µg/L was subtracted from all undiluted values of lead.

Results for Laboratory Control Samples
Arsenic Only

File Number	Amount	Found	% Recovered
Trace AA	50.0 µg/L	53.7 µg/L	107***
CCV #1	50.0 µg/L	54.7 µg/L	109**
CCV #2	50.0 µg/L	54.1 µg/L	108**
LCS #1	14.1 mg/kg	12.5 mg/kg	89*
LCS #2	14.1mg/kg	14.4 mg/kg	102*
CRA	5.0 µg/L	5.5 µg/L	110****

* Acceptance criteria: 70 - 130 %

** Acceptance criteria: 90 - 110 %

*** Acceptance criteria: 85 - 115 %

**** Acceptance criteria: 50 - 150 %

Results for Laboratory Control Samples
Lead Only

File Number	Amount	Found	% Recovered
Trace AA	50.0 µg/L	51.4 µg/L	103***
CCV #1	50.0 µg/L	50.5 µg/L	101**
CCV #2	50.0 µg/L	50.4 µg/L	101**
LCS #1	95.3 mg/kg	87.0 mg/kg	91*
LCS #2	95.3 mg/kg	81.3 mg/kg	85*
CRA	5.0 µg/L	5.5 µg/L	110****

* Acceptance criteria: 70 - 130 %

** Acceptance criteria: 90 - 110 %

*** Acceptance criteria: 85 - 115 %

**** Acceptance criteria: 50 - 150 %;

Results for Duplicate Samples
Arsenic Only

Sample ID	Sample Results	Duplicate Results	RPD*
3-0CCC1-B	3.5 mg/kg	4.2 mg/kg	18 %
LCS	12.5 mg/kg	14.4 mg/kg	14 %

*Acceptance criteria: $\pm 35\%$ RPD

Results for Duplicate Samples
Lead Only

Sample ID	Sample Results	Duplicate Results	RPD*
3-0CCC1-B	78.5 mg/kg	86.0 mg/kg	8 %
LCS	87.0 mg/kg	81.3 mg/kg	7 %

*Acceptance criteria: $\pm 35\%$ RPD

Results for Spiked Samples
Arsenic Only

Sample ID	Sample Results	Sample + SPK	SPK	% Recovered*
3-0CCC3-B	4.8 mg/kg	14.7 mg/kg	10.0 mg/kg	99
LFB	< 1.0 $\mu\text{g/L}$	26.2 $\mu\text{g/L}$	25.0 $\mu\text{g/L}$	105
LFB (Digested)	< 0.1 mg/kg	8.96 mg/kg	10.0 mg/kg	90

*Acceptance criteria: 65 - 135 %

Results for Spiked Samples
Lead Only

Sample ID	Sample Results	Sample + SPK	SPK	% Recovered*
3-0CCC3-B	86.0 mg/kg	101.0 mg/kg	10.0 mg/kg	150**
LFB	< 0.8 $\mu\text{g/L}$	25.2 $\mu\text{g/L}$	25.0 $\mu\text{g/L}$	101
LFB (Digested)	< 0.1 mg/kg	9.4 mg/kg	10.0 mg/kg	94

*Acceptance criteria: 65 - 135 %

** Spike used was less than 20 % of sample value.

Split Samples:

☐ Accepted ☐ Declined

Signature _____

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		ABSENCE LEAD		REMARKS	
STAT. NO.		DATE							
SAMPLERS: (Signature)									
<i>Bonnie L. Lavelle</i>								USLA U8-020067 171 02 T 08L 50108D 0800BZ00 (Superfund)	
1-RX	1/25/02	1343	X		3-0CCC1-R	X	X	SOIL	✓
2-RY	1/25/02	1400	X		3-0CCC2-R	X	X	SOIL	✓
3-RZ	1/25/02	1421	X		3-0CCC3-R	X	X	SOIL	✓
BB	1/25/02	1435		X	3-0CCC4 8-105482 <i>W</i>	X	X	WATER (RINSATE)	PH HAS NOT BEEN ADJUSTED
<p>Note: Remainder of samples Raw (R) and Bulk (B) should be returned to Bonnie Lavelle - 8EPR-SR x6579</p>									
<p><i>01/25/02</i></p>									
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Relinquished by: (Signature)		Date/Time	
<i>Bonnie L. Lavelle</i>		01/25/02 1630							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Relinquished by: (Signature)		Date/Time	
Relinquished by: (Signature)		Date/Time		Received for Laboratory by: (Signature)		Date/Time		Remarks	
				<i>Vicki C. Mack</i>		01-25-02 16:35		<p>Samples collected and delivered immediately at 44°C NO Seals in custody of sample at all times</p>	

Distribution: Original Accompanies Shipment: First Copy to Coordinator Field Files: Second Copy to Representative of Inspected Facility

Split Samples:
☐ Accepted ☐ Declined
Signature